



DYNAMIX

Decoupling growth from resource use
and environmental impacts

Deliverable 7.3

Report on the results of the
1st DYNAMIX Policy Platform:
“Exploring Opportunities and Challenges of Resource
Efficiency Policy in Europe”
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1 Introduction

1.1 About the DYNAMIX project

The project DYNAMIX (Decoupling economic growth from resource use and its environmental impacts) is funded by DG Research of the European Commission under the 7th Framework Programme for Research and Development. It has started in September 2012 and will run until December 2015 with the aim to propose policy mixes for achieving absolute decoupling of economic performance from resource use and its related environmental impacts. In so doing, the project uses quantitative modelling and qualitative assessments to investigate the effectiveness of a set of 3 to 5 policy mixes to shift the EU onto a resource-efficient pathway to 2050. Overall, DYNAMIX tackles three sets of questions:

- *Where do inefficiencies in resource use and resource policies currently occur?*

What are the underlying drivers? Are there any examples of policy mixes successfully tackling these inefficiencies?

- *How do underlying paradigms affect resource use?*

How can new paradigms (e.g. cradle to cradle or product to services) be translated into concrete policy making?

- *What could be three to five of the most promising policy mixes for achieving absolute decoupling?*

What potential policy impacts can we see using environmental and economic modelling and qualitative analysis, including an analysis of factors influencing human behaviour?

The project will result in clear policy recommendations to provide EU and national policy-makers with tangible support towards implementing powerful resource efficiency policies. It will specifically contribute to the EU Flagship Initiative “Resource-efficient Europe”.

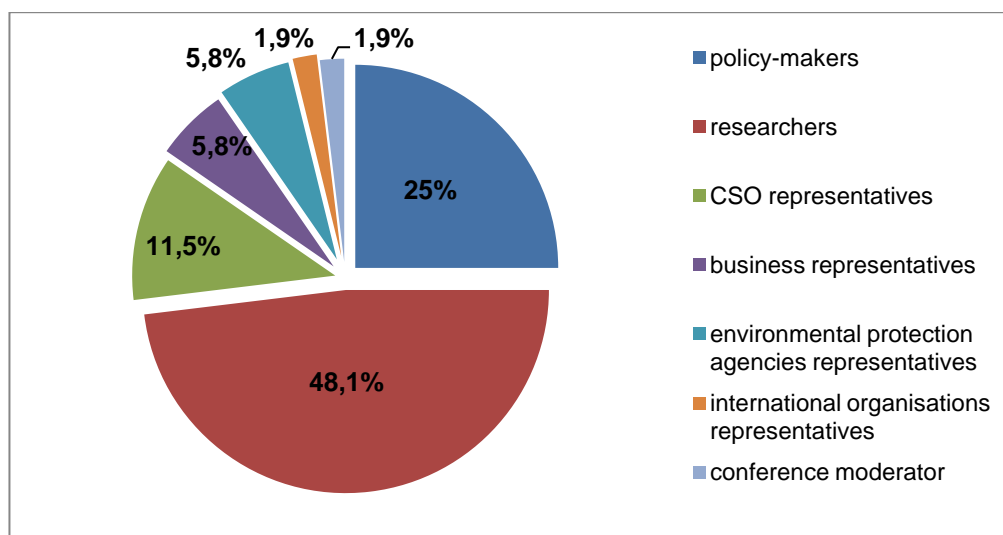
1.2 About the DYNAMIX Policy Platforms

Policy-makers and other stakeholders will be involved in a systematic participatory learning process throughout the project. DYNAMIX Policy Platforms provide a regular forum for knowledge exchange and mutual learning. Policy-makers and other experts can thus shape the project’s design based on their needs.

The 1st DYNAMIX Policy Platform, entitled “Exploring Opportunities and Challenges of Resource Efficiency Policy in Europe”, took place in Brussels on 20-21 March 2013. In total, 52 participants from 14 European countries attended the event, with the following distribution of institutional backgrounds (Fig.1): 13 policy-makers (25% of all participants); 25 researchers, incl. DYNAMIX project partners (48.1%); 6 CSO representatives (11.5%); 3 business representatives (5.8%); 3 representatives of environmental protection agencies

(5.8%); 1 representatives of an international organisation (1.9%); and the conference moderator.

Figure 1 Distribution of participants



Through participation and interactive exchange with policy-makers and other experts, the 1st DYNAMIX Policy Platform aimed to explore the current situation and challenges of resource efficiency policy-making in Europe in order to inform the next project steps and thus help the project to respond to and address relevant issues addressed by the participants. The 2nd DYNAMIX Policy Platform will take place in October 2013 and will focus on inefficiencies and existing policy mixes on resource efficiency.

In the following chapters, we will describe the presentations, discussions and group work results of the 1st DYNAMIX Policy Platform. More information about this event can also be found at the DYNAMIX project website at <http://dynamix-project.eu/dynamix-events>.

2 Session 1: Introduction - Resource efficiency policy in Europe

Session 1 of the 1st DYNAMIX Policy Platform had the aim to provide an overview of current resource efficiency policy issues in Europe as well as to introduce the project to the participants and locate it in the policy debate on resource efficiency. The session comprised two keynote presentations, one by Carina Vopel (DG Environment, European Commission), and the other by R. Andreas Kraemer (Director of Ecologic Institute, coordinating institution of the project). Like all presentations, the PowerPoint presentations of the keynotes in Session 1 can be downloaded from the DYNAMIX project homepage: <http://dynamix-project.eu/1st-dynamix-policy-platform>.

Keynote presentation:**Carina Vopel (Head of Unit, Directorate F.1, DG Environment, European Commission)****“Welcome address – identifying current resource efficiency policy issues in Europe”**

In her welcome address, **Carina Vopel** (*Head of Unit, Directorate F.1, DG Environment, European Commission*) gave an overview of the main issues in the current resource efficiency debate and highlighted the practical actions foreseen by the EU Commission on the topic of ‘resource efficiency’. At the beginning, she talked about the Europe 2020 Strategy and, in particular, addressed the Flagship initiative on “A resource Efficient Europe” as well as the 2011 “Roadmap to a resource efficient Europe”. By so doing, she described the strategies’2050 visions, the milestones to be reached by 2020, and a set of immediate actions. She then stressed three crucial activities on the European level: first, she described one of the seven priorities of the Commission’s Work Programme for 2013 that is “using Europe’s resources to compete better”. Secondly, she mentioned the proposal for the new Environment Action Programme, entitled “Living well, within the limits of our planet” which includes environmental objectives for Europe up to 2020. The third key point Ms. Vopel mentioned concerned the Rio+20 follow-up Communication by the European Commission, “A decent life for all: Ending poverty and giving the world a sustainable future” that was published at the end of February 2013.

After emphasizing the intention and efforts undertaken by the European Commission towards implementing resource efficiency policies, Ms. Vopel mentioned how a number of outreach actions that are also taking place. She then presented a series of actions at the European level concerning ‘resource efficiency’, grouped into few headlines:

1. In the field of Sustainable Consumption and Production (SCP), e.g. the Communication on stimulating the single market for green products;
2. In the key sectors of sustainable buildings, sustainable food and Urban Mobility;
3. On waste, with the purpose of “turning waste into a resource”;
4. Safeguarding natural capital, e.g. implementation of the Water Blueprint, review of air quality policies; and
5. On investment and innovation, e.g. state aid review: environmental state aid guidelines (2013-2014), disclosure of non-financial information by companies (second quarter of 2013), green paper on long term financing of the economy (and follow up to the green paper in the third quarter 2013).

In terms of outreach actions, Ms. Vopel focused especially on two actions: on the one hand, the Finance Roundtable, and, on the other hand, the Resource Efficiency Platform. The Finance Roundtable was launched on 15 February 2013 with the discussion of key topics such as: (a) innovation, new business models and SMEs in resource efficiency; (b) large investments and infrastructure: how to enable sufficient financial flows?; (c) mainstreaming resource efficiency in classical investments; and (d) key actions to channel investments for resource efficiency. With regards to the Resource Efficiency Platform, she mentioned its

purpose of a 'stakeholder platform' to provide guidance and recommendations on: circular economy and green economy; framework conditions for resource efficiency investments; setting objectives and measuring progress. Finally, Ms. Vopel put particular emphasis on the necessity of engaging EU Member States, mentioning, for instance, the importance of the European Semester which comprises recommendations to the Member States on (i) getting prices right (identify and phase out environmentally harmful subsidies), and (ii) raising public revenues through environmental taxes.

Keynote presentation:

R. Andreas Kraemer (Director, Ecologic Institute, Germany)

“Introduction to the DYNAMIX project and framing the resource efficiency debate in Europe”

In his presentation, **R. Andreas Kraemer** (*Director, Ecologic Institute, Germany*) provided the participants with background information about the objectives of and activities in the DYNAMIX project. At first, Mr. Kraemer introduced the issue of the pressure associated with global resource use by mentioning that global resource use has increased almost six-fold over the last century. In addition, he highlighted that an overall unsustainable management of resources over their life-cycle has resulted in a global increase of resource scarcity, causing ecological burden shifting across the globe and pushing planet boundaries beyond limits. In this context, Mr. Kraemer put particular emphasis on the need to achieve absolute decoupling, defined in the DYNAMIX project as enabling growing GDP while resources use and environmental impact are declining in absolute terms. Secondly, Mr. Kraemer gave an overview on the scopes and objectives of the DYNAMIX project. He pointed out that, within the framed context, the DYNAMIX project aims at identifying innovative resource efficiency policy mixes, and at giving tangible support needed for key EU policies on resource efficiency and the sharpening of EU policy agenda, by also involving DG Environment and DG Research. Furthermore, he described the main objectives of the project: (i) identifying the reasons for resources inefficiency; (ii) learning from past success and/or failures; (iii) identifying policy mixes for absolute decoupling; and (iv) assessing their effectiveness and sustainability for medium- (2030) and long-term (2050). Additionally, he described the resource scope and the socio-political and scientific discourses that the DYNAMIX project will address. He then emphasized that the project will strive to help homogenizing the terminology related to resource efficiency in order to reach a common understanding on the existing definitions and paradigms. While framing the DYNAMIX project, Mr. Kraemer put particular emphasis on explaining the scope of the 1st Policy Platform that, by involving different stakeholders groups, aimed at initiating a process of knowledge exchange and joint efforts between different actors working with resource efficiency issues. Thus, in order to deliver concrete policy proposal that take into account the complexity of the economic, political, environmental and social process, he pointed out that relevant stakeholder groups (i.e. policy makers, researches, industries, NGO) will be involved in knowledge production from the very beginning and for the entire duration of the project's running time. Finally, in the last part of his presentation, Mr. Kraemer gave further insights on the different working packages that structure the DYNAMIX project and on the structure and aims of the 1st Policy Platform, respectively.

3 Session 2: Resource efficiency policy in the EU Member States

The second session of the Policy Platform had the aim to look into resource efficiency policies applied in the EU Member States and identify recent developments, effective policy measures, and future challenges. The session was introduced by a keynote presentation and followed by an interactive “country island” format in which participants could learn about specific resource efficiency policies applied in certain countries and had the chance to exchange information and ideas on EU Member States resource efficiency policies.

Keynote presentation:

Pawel Kazmierczyk (Project manager, European Environment Agency)

“Resource efficiency in Europe”

In his presentation, **Pawel Kazmierczyk** (*Project manager, European Environment Agency*) gave an overview of policies and approaches to resource efficiency in European countries, based on a study the European Environment Agency (EEA) undertook in 2011 and their follow-up activities. After presenting briefly the work of the EEA, he described the EEA’s work on resource use and resource efficiency, mainly focusing on the 2011 EEA report, “Resource efficiency in Europe – Policies and approaches in 31 EEA member and cooperating countries”. In this context, he mentioned the ‘Roadmap to a resource efficient Europe’ and the fact that, by 2013, the EU Member States need to develop or strengthen existing national resource efficiency strategies, and mainstream these into national policies for growth and jobs. The above mentioned report by the EEA took stock of what was happening in Europe at country level until 2011 throughout a survey, which focused on ten topics. For more details on the EEA report, please visit their website at <http://www.eea.europa.eu/themes/economy/resource-efficiency>.

Reflecting on the results of this report, Mr. Kazmierczyk offered several reflections: firstly, he focused on the definitions of ‘resources’ and ‘resource efficiency’ by mentioning that there is no generally accepted common understanding of these terms across the different countries. He mentioned that a few countries formally defined the term ‘resources’ in their policies, while others used the narrower term ‘raw materials’ when looking at resource efficiency. Moreover, the translation of terminology into national languages further complicates things in this matter. Therefore, he pointed out that countries would welcome clarity on how the ‘resource efficiency’ policy area relates to ‘sustainable consumption and production’, ‘sustainable use and management of resources’, ‘green economy’, etc. A second important reflection is the way resource efficiency was embedded in policies. In this context, he pointed out that although all EU Member States will have to “develop or strength existing national resource efficiency strategies” by 2013, only few countries have a specific strategic document (i.e. national strategy, action plan, etc) on resource efficiency in place. Thirdly, he noted that resource efficiency is by far most commonly mentioned in two ‘sectoral’ policies: (i) for the

energy sector (including improving energy efficiency, increasing use of renewable energy sources, etc), and (ii) for the waste management and recycling sector. With regard to the waste sector, Mr. Kazmierczyk described it as a success story because today, waste was being considered as a 'resource', and thus very different compared to the past. He then proposed a sample of targets and objectives that were found in the survey, such as, for instance, 'doubling of the abiotic material productivity by 2020' or 'doubling the energy productivity by 2020'.

With regard to the institutional framework, Mr. Kazmierczyk said that a great variety of institutional settings and organizational arrangements for resource efficiency can be found across Europe while four types of ministries are commonly involved in policy design and implementation: the ministries of environment, energy, economy, and agriculture. He also mentioned that overlapping competencies and limited inter-ministerial coordination were found in some countries, while in others, for instance in Finland and Germany, there have been recently established "specialised agencies" to support resource efficiency policy development. In the same context, he affirmed that the results show a rather limited involvement of the local and regional levels, mainly due to the fact that resource efficiency is seen as a central government issue.


Finally, Mr. Kazmierczyk provided several conclusions on the topic of resource efficiency policy: Firstly, resource efficiency has become politically recognized to some extent in most countries, but its mainstreaming into other policies is still at an early stage; secondly, many countries have yet to establish an integrated approach to resource efficiency policy making; thirdly, the focus is still primarily on energy resources and waste as established fields of environmental policy, and therefore a widening of the resource efficiency policy scope to include other relevant resources is not yet common practice in the majority of European countries. In fact, only few national resource efficiency policy strategies/action plans have been developed so far. Additionally, he underlined the fact that targeting stakeholder groups (going beyond companies and some business associations) still remains at an early stage, whilst the knowledge base (also in terms of scientific evidence) for the development and implementation of resource efficiency was found as not always readily available. In this context, he suggested that specialized agencies for resource efficiency could be a strong driver for additional capacity building, especially if connected to policy implementation. Therefore, he concluded that a need to increase awareness of and intensify discussions on the institutional dimensions of resource efficiency was found extremely relevant in the EEAs report on resource efficiency.

Interactive session: Country Islands

"Experiences, processes and challenges of resource efficiency policy in the EU Member States"

The keynote was followed up by an interactive exercise, based on the "World café" methodology. In so-called "Country islands" the participants could learn more about resource efficiency policies in 4 EU Member States and exchange experiences. The four country islands were: (i) **Belgium/Flanders**; (ii) **Finland**; (iii) **Germany**; (iv) **Netherlands**. After

instructions in the plenary by the moderator, all participants could choose one 'country island' (i.e. a poster or flipchart paper with information). One 'round' at one country island took 20 minutes and then the participants moved on to the next country island. In total, three rounds were undertaken during this session. Within one 'round', the country presenter gave a short presentation (approx. 5 minutes) and then participants could comment, ask questions, and bring in their own experiences (approx. 15 minutes). Each country presenter was asked to focus on: main objectives of national resource (efficiency) policy; experiences with implementing policies/policy instruments used; influence of the European Commission's Flagship Initiative on Resource Efficient Europe on national resource efficiency policy; future directions and developments for national resource (efficiency) policy; and knowledge gaps and information needs for resource policy.

At the Belgium country island, **Mieke De Schoenmakere** (*Government of Flanders - Environment, Nature and Energy Department; Belgian coordinator Resource efficiency*), gave a short presentation on coordinating, developing,  implementing and streamlining policy instruments, objectives and indicators for resource efficiency. During the Belgian EU Presidency, Belgium has intensified discussions on sustainable materials management and sustainable consumption and production at the EU level, resulting in the Council Conclusions, "Sustainable Materials Management and Sustainable Consumption and Production: key contribution to a resource efficient Europe". Since then, resource efficiency has been an important issue for Belgium, mainly because the closing of material-loops and the shift to product-service systems are important steps towards a greener economy. This approach leads to a cleaner environment, to opportunities for more and greener jobs, and to the protection of businesses and the entire economy through the sustainable management of resources. To get an overview of existing initiatives/policy instruments (at regional and federal level) contributing to resource efficiency in Belgium, an inventory has been started up in the country. It will be a helpful tool to identify gaps and determine opportunities for the future.

The discussion among the participants revolved around the topics: "What kind of policies are in place already and what is their state of implementation?", "How does the communication and facilitation on the national level work?", and "How to measure progress and effectiveness of policies". Most of the questions raised by the audience centred on the topics of (1) policies addressing final consumption (i.e. educational and awareness raising policies) and in particular the issue of resource intensity labelling; (2) policies targeting resource pricing, and (3) policies addressing the phase out of environmental harmful substances. With regard to the latter two, policies are in the stage of being developed or in the process of implementation. Concerning educational and awareness raising policies, Ms. De Schoenmakere responded that this should be one of the core issues at all involved levels as changing consumer behaviour is crucial if we want to make the transition towards a resource efficient society. In practice, initiatives have already been taken at several political levels, but efforts need to be increased. Likewise, some of the participants raised the question on how to measure progress and effectiveness of policies. In this regard, finding the right indicators is one of the challenging tasks for the near future. Regarding tackling the transition towards a resource efficient society as a whole, she stressed the importance of a wide dialogue with the different stakeholders involved in the process. In addition, some participants mentioned that, in the

case of Belgium, the challenge of coordinating a number of policies in different sectors and, moreover, in different institutional set-ups seemed a crucial issue for achieving absolute decoupling.



At the Finnish country island, **Merja Saarnilehto** (*Ministry of Environment*) introduced her country's resource efficiency policies by outlining the policy approaches followed in Finland. For instance, she mentioned (a) the National SCP Program (by SPC Committee from 2005), (b) the Natural Resource Strategy (by Finnish Innovation Fund Sitra from 2009), and (c) the Government Report to Parliament (from 2010). She then described a series of potentials and challenges: For instance, she mentioned that Finland has a strong bio-capacity (especially forests and water ecosystems), but that the Finnish economy is strongly dependent on foreign natural resources and a big part of domestic production is consumed abroad. She then argued that the economy produces both high- as well low value-added products and that the forest sector in Finland was under a substantial structural change (i.e. shifting production abroad, looking for new bio-based products). Therefore, she emphasised the Government Program 2011 (especially Strategic Pillar III) by outlining that it included an objective to ecologically and socially sustainable economic growth that should be achieved by: (i) striving for a Finland that is among the world leaders in environmentally friendly, resource and material-efficient economies and as developer of sustainable consumption and production methods; (ii) taking measures to meet the set environmental goals are taken in all sectors of society; and, (iii) and strengthening and diversifying the economic structure. She then touched upon environmental-economic assessments that were on-going at the moment, mentioning, for instance, ENVIMAT (environmental impact, value added, employment) and describing it as based on a macro-economic input-out modelling integrated to the LCA, estimates of the key sectors and their potentials on resource efficiency in Finland 2012, and scenarios including reduction options (e.g. minerals and biomass). Furthermore, she outlined the key sectors on resource efficiency in Finland that included construction, forest industry, metals industry, electricity production, real estate management. Finally, she concluded by outlining the next steps on resource efficiency foreseen in Finland: (1) programming resource efficiency, for instance, by supporting the structural changes enabling increasing resource efficiency (intelligent growth, high value-added products, welfare services; (2) strategy and tools on bio-economy: by ensuring availability, sustainability and acceptability of biomass (especially wood), and identifying and including ecosystem services; (3) green economy, green growth: development and demonstration projects are ongoing in several policy sectors, and government headlines for the sustainable, green economy; and, and (4) the Government Foresight 2030: a report on sustainable growth and well-being in Finland will be prepared for autumn 2013 and will include the idea of "scarcity".

The discussion with the participants evolved around issues like the benefits for developing a separate national resource efficiency strategy, and how to balance the focus on targets for resource efficiency and the definition of specific processes for resource efficiency policy. It was also asked how the lead ministry for resource efficiency can be cooperate with other sectoral ministries and how to identify priority resources that should be addressed by all policy initiatives. Moreover, the participants addressed other important issues like consumption

patterns (incl. household consumption and behavioural aspects) as well as short- and long-term issues in relation to ecosystem services.

At the Germany country island, **Matthias Koller** (*Federal Environment Agency*) introduced the German Resource Efficiency Programme (ProgRes) with an overview on the challenges related to resource efficiency that Germany is facing. At first, a strong dependency of the national economy on resources import was reported, with highly volatile resource prices, and materials accounted for 43% of manufacturing sector costs. Thus, the major challenge concerned not only a secure supply of resources, but also resource efficiency. He then gave an overview on German actions towards resource efficiency, presenting the first programme, started in 2002, with the National Strategy for Sustainable Development (NSDS) that identified a set of 21 indicators and quantitative targets. Furthermore, he touched upon the Indicator Report 2012, published by the Federal Statistical Office, from which we also presented several outcomes. Mr. Koller then introduced the German Resource Efficiency Programme (ProgRes), adopted by federal parliament on 29 February 2012, by stressing that Germany was one of the few countries that have a national Resource Efficiency Programme in place. ProgRes focuses mainly on abiotic raw materials and material use of biomass, with priorities on the necessity to decouple economic growth from resource use, to reduce environmental impacts, and to improve the sustainability and competitiveness of the German industry. Moreover, impacts would be taken into account along the entire value chain: from raw materials supply and product design, to consumption, and closed cycle management. In order to monitor progress, a report is foreseen every 4 years. Finally, Mr. Koller explained that actions focus mainly on: (i) resource efficient production, (ii) resource efficient consumption, and (iii) closed cycle management.



After the presentation, several questions were raised by participants. For instance, it was asked about the reaction of the private sector to the targets set within ProgRes. Mr. Koller argued that although the private sector was conservative about regulations, resource efficiency started to be considered an important issue and, therefore, Germany established a resource efficiency centre (Zentrum Ressourceneffizienz ZRE, associated with the German association of engineers, VDI) to provide support to companies. Then, questions were raised as to the conditions for success of ProgRes and Mr. Koller stressed the competence and strong expertise of the people in charge of the program, enhanced by a strong interest for the development of the country. In addition, it was asked about the strategy involvement into international, bi- or multi-lateral agreements with producing/exporting countries. Mr. Koller answered that, in Germany, there was a raw material initiative (more on global trade) targeting access to resource supply. Finally, a question was raised concerning the involvement of citizens into ProgRes, the possibility to measure impact on education, and whether behavioural education was taken into account in the design of the programme. Mr. Koller argued that although the program targeted mainly the business sector, some educational initiatives, mainly targeting schools, will take place, and that the challenge was to change society by maintaining well-being but with a less material intense life.

At the Dutch country island, **Frans A. Vollenbroek** (*Ministry of Infrastructure and the Environment*) presented his country's resource efficiency policies



starting with the main objectives related to the Green Economy: sustainable use of natural resources; environmental limits need to be respected; no overexploitation of renewable resources; vast reduction of GHG; a safe environment (air, water, soil) for all; and low-carbon, circular economy. He then gave a few examples of Dutch targets, mentioning for instance: increase of recycling rate from 78 to 83% by 2015; 100 % Green Public Procurement (at national level); 16% renewable energy by 2020, 100% by 2050; no net loss of biodiversity; 20% less food waste by 2015; one million electric cars on the roads by 2025. Mr. Vollenbroek also introduced several examples of policy instruments that were used in the Netherlands: environmental taxes as percentage of all taxes exceeds 10%; Green Funds Scheme (tax credit and tax exemption given to early investors in “green funds”); acceleration and up-scales sustainable trade in ‘Sustainable Trade Initiative’; more than 100 Green Deals have been signed with various parties to bring Green Growth into practice; and expansion of the number of charging stations for electric cars. In terms of future directions for the Netherlands, he talked about topics such as dynamic standards; value chain management; sustainable sourcing; product passport; priority areas such as biotic resources, including food; extension of the eco-label directive; ecosystem restoration/ecological networks; natural capital accounting. Finally, he mentioned also a number of knowledge gaps that were felt as crucial: indicators (e.g. beyond GDP); pricing (how to create incentives for resource productivity); new business models (including value chain approach); valuation of natural capital.

After the presentation, several questions were raised by participants. The discussion with the participants evolved around a diversity of issues that came out during the three rounds. For instance, it was discussed that the Dutch strategies and plans focus very much on the side of imports and on biotic resources. Furthermore, participants asked about the calculation of the external costs. Moreover, the participants addressed other important issues like environmental harmful subsidies, and difficulties in ‘getting prices right’ as well as taxation. In addition, participants discussed how to stimulate innovation and, if incentives fail to show results, about the need for enforcement to achieve resource efficiency.

4 Session 3: How to achieve absolute decoupling?

Session 3 of the Policy Platform had the aim to investigate issues and policy approaches around the concept of ‘absolute decoupling’. The session was kicked-off by Katharina Umpfenbach from the Ecologic Institute, presenting the approach of DYNAMIX to assess the effectiveness of policy mixes that are designed to achieve absolute decoupling. The presentation was followed by interactive working groups which each looked into decoupling approaches, paradigms, indicators and actors.

Keynote presentation:**Katharina Umpfenbach (Ecologic Institute, Germany)****“DYNAMIX approach to assessing the effectiveness of policy mixes”**

In her presentation, **Katharina Umpfenbach** (*Ecologic Institute, Germany*) presented the research approach of the project by focusing specifically on the central aspect of the research to be undertaken in the DYNAMIX project: ‘How to assess if resource efficiency policies actually do achieve what we want them to achieve?’ She explained how DYNAMIX will respond to the call by the European Commission under the headline “Policy options for a resource-efficient economy“. Firstly, she pointed out that the project was going to search for a policy mix that potentially leads to an absolute decoupling of economic growth from unsustainable use of natural resources and environmental degradation by looking at the inputs into our economy and the impacts of our resource use across the whole life cycle. Secondly, she said that the project will investigate new concepts and paradigms to ensure that the resource efficiency dimension throughout the life cycle of products/services is embedded in policy formulation, taking into account an adequate policy mix that optimises synergies and addresses trade-offs between different areas and policies. She then described the assessment criteria for the medium- and the long-term that are applied in the project: effectiveness, efficiency and sustainability of policies. Furthermore, she focused on the effectiveness criterion and its linkages with ‘absolute decoupling’ by presenting several questions that will be addressed in DYNAMIX: (1) How will we know if absolute decoupling has been achieved?; (2) What indicator(s) to use for resource use and environmental impacts?; (3) Weighting of different impacts?; (4) Will absolute decoupling be enough to achieve sustainable management of natural resources?

Ms. Umpfenbach said that a vision for 2050 will be developed in DYNAMIX together with a concrete set of key targets that the EU should achieve by 2050, with a twofold aim: (i) to outline the magnitude of the challenge more clearly; and (ii) to give some input into the discussion of resource efficiency targets that is currently ongoing in various forums and platforms at different political levels. Moreover, she mentioned that these targets should be chosen in a way that (a) in approximation, they cover the most critical impacts of resource use; (b) reflect looming scarcity of vital resources; (c) reflect the EU’s ‘fair share’; (d) they can be measured based on available data; and (e) they are solution-open. She then presented the targets of the DYNAMIX project, emphasizing that how these targets are to be achieved is still a ‘work-in-progress’ and thus will be subject for discussion in the various groups works during the policy platform.

Interactive working group session:**“Reflection and prioritization of decoupling approaches, paradigms, indicators and actors”**

After the keynote presentation, participants were asked to join one out of three working groups to reflect and prioritize decoupling approaches, paradigms, indicators and actors. Each working group (WG) discussed a different topic:

- WG 1: Assessment criteria and indicators;
- WG 2: The role of paradigms and paradigm shifts in the resource efficiency debate;
- WG 3: Relevant stakeholders, their perspectives and interests.

At the beginning of each working group discussion, there a 5-minute flashlight presentation was held by a DYNAMIX project partner, followed by a 55-minute discussion, facilitated by a representative from the project consortium.

WG 1: Assessment criteria and indicators

The first working group was facilitated by Katharina Umpfenbach and Adrian Tan (both from the DYNAMIX project team). The flashlight presentation focused on (i) what kind of criteria will be applied for evaluating whether a policy is successful or not, and (ii) how the project measures progress towards a resource efficient Europe. With regard to the four rather broad assessment criteria for policies applied in DYNAMIX (i.e. effectiveness, efficiency, sustainability, and contribution to eco-innovation), Ms. Umpfenbach pointed out that for the project team it was a challenge to find a common understanding of how to operationalize these criteria. More specifically, she described that for a case study, the criterion of effectiveness is measured against the benchmark of absolute resource and impact decoupling, whereas on the economy level, any policy pathway that meets the five key targets defined by the project (and at the same time secures well-being) is considered as effective. For the criterion of efficiency (i.e. cost-efficiency), she explained that the achieved level of resource and impact decoupling is compared against the monetary (or other) resources applied to achieve the outcome. Furthermore, for the criterion of sustainability, she explained that a diversity of issues were taken into account, such as environmental protection (i.e. trade-offs and co-benefits through impacts on other ecosystems or consumption levels of resources), social equity (i.e. distribution of incomes and burden-sharing between social groups) and a thriving economy (i.e. job creation). The fourth assessment criterion contribution to eco-innovation refers to the whether the policy leads to any form of innovation delivering economic and environmental benefits at the same time. In the second part of the flash light presentation, Ms. Umpfenbach described the most crucial criteria on how to derive the key targets and associated indicators for 2050: (a) covering the most critical impacts of resource use; (b) reflecting scarcity of vital resources; (c) being measurable; and (d) having little overlap between them.

During the interactive part of the session, the facilitators asked the participants to write down two to three top criteria for a successful policy or policy mix, i.e. What is it that makes it a success story?, What would you expect a future policy to achieve to call it a success? The most crucial and frequently mentioned aspects raised by the audience were: (1) policy targets and objectives should be achievable; (2) stakeholder involvement in target formulation; (3) policy objectives need to be well-defined and measurable. After a first round of input from the audience, the facilitators summarised the results and stressed that a big tension existed between different target criteria (such as measurability, relevance and achievability) and that the actual selection of objectives very much depends on the mind set of affected stakeholders during the process. Furthermore, they highlighted that issues like cost-efficiency and capacity

trigger innovation as properties of successful policies have not been mentioned by the participants. The participants gave detailed feedback on the five proposed key targets for 2050.

WG 2: The role of paradigms and paradigm shifts in the resource efficiency debate

The second working group was facilitated by Martha Bicket and Doreen Fedrigo-Fazio (both from the DYNAMIX project team). This working group introduced the concept of paradigms and their use in DYNAMIX. Designed to feed into upcoming work in DYNAMIX Work Package 5, the session focused in particular on the nature of the relationship between paradigms, policy interventions and policy success, through an exploration of the importance of public acceptability of policies. Ms. Bicket began by giving a brief introduction to the role of paradigms within DYNAMIX, outlining definitions and examples, and how an understanding of paradigms can contribute to the design of more successful and robust policy mixes for absolute decoupling. Ms. Bicket then set out the following three discussion points for the working group around the central theme of public acceptability: (1) To what extent is public acceptability an important concern if the primary target of the policy is not the public? (2) Examples of successful/unsuccessful policies with high/low public acceptability; (3) What happens when there is no overlap between public acceptability and the policies necessary for absolute decoupling?

Participants divided into two sub-groups to confer their opinions and experiences on each of the three discussion points, reuniting at the close of the session to share and compare their findings in a discussion with the working group as a whole.

The first question served as a broad introduction to the working group's focus, stimulating initial discussion around the importance of public acceptability and its relationship to paradigms and policy effectiveness. Participants felt that public acceptability was not necessarily a key factor for policy success; for example, in policies uniquely targeting industry and in those with strong support from special interest groups, public acceptability was widely considered to be less important. However, it was noted that, even in these cases, public acceptability can become an important factor in a policy's success if public interest is stirred up by special interest groups, with the example of the 2011 failure of proposed changes to the management of the Public Forest Estate in the UK being cited.

The second discussion point used participants' expertise and experience to generate a collection of policy cases and to categorise them depending on their perceived success and public acceptability. Participants discussed various examples of particular interest including: the London congestion charge, Germany's energy transition ('Energiewende'), the Montreal Protocol, Denmark's sugar and fat tax, the minimum alcohol price for England and Wales, Sweden's differential tax on the environmental performance of vehicles, and healthy eating campaigns. In particular, examples of policies with low levels of public acceptability, but which nonetheless had been implemented and considered effective, were highlighted. Overall, rather than observing a stable relationship between public acceptability and policy effectiveness, participants noted that policies instead appeared to undergo a more complex

series of iterative changes in acceptability throughout their lifetimes, with both differing initial levels of public approval and varying degrees of success.

In the third discussion topic participants sought to explore how the dissonance might be resolved when the policy need is high but public support is low. Communication and education were identified to be important factors in swaying public acceptance and in shifting paradigms. Using the hypothetical example of a ban on meat consumption – which was argued would be prohibitively unpopular – participants championed the value of soft policy instruments such as the ‘Meat-Free Mondays’ campaign.

WG 3: Relevant stakeholders, their perspectives and interests

The third working group was moderated by Andrea Bigano and Gerald Berger (both from the DYNAMIX project team). At the beginning, Mr. Bigano presented the main topic as an introduction for the following discussion. He described four discourses in resource efficiency: (i) supply risks; (ii) the Green Economy; (iii) environmental impacts; and (iv) limits to growth/ending poverty. He explained that every discourse is related to ‘perceived interests’ and the involvement of ‘stakeholders’. He then analysed each of the four discourses individually. On reducing supply risks, he mentioned two different perceived interests linked respectively with involved stakeholders: (a) policy-makers working in the field of industrial policy have the interest of securing national industrial base and jobs, while (b) industry and business associations work for reducing import dependence. Similarly, in fostering a Green Economy, different kinds of stakeholders are involved with four different perceived sets of interests: (a) policy-makers working in the field of environmental and industrial policy have the interest of securing growth and jobs; (b) industry and business associations want to increase competitiveness; (c) academia looks for advocating the best scientific solutions; and; (d) Civil Society Organisations (CSOs) work toward resource conservation. In terms of minimising environmental impacts, Mr. Bigano described the following variety of interests: (a) policy-makers working in the field of environmental policy are interested in strengthening environmental policy; (b) academia is warning to respect planetary boundaries; and (c) CSOs mainly look at planetary survival. Finally, with regard to acknowledging limits to growth/ending poverty: (a) policy-makers working in the field of environmental and development policy are interested in strengthening environmental and development policy; (b) academia is calling to stay within certain limits; and (c) CSOs perceive as crucial both, alternative growth models and equitable resource access.

Afterwards, a lively discussion among the participants of this sub-group took place that focused mainly on two topics: on the one hand, almost all participants agreed on the presence of frictions, not only among stakeholders groups, but also within stakeholders groups, which are often characterised by very different viewpoints and perceptions. On the other hand, much attention was directed towards the need to understand and overcome systemic and institutional constraints, especially in consideration of democratic processes and political agendas, in particular: political commitment; election cycles; varying degree of access of different stakeholder groups to political processes, policy design and implementation, and information.

At the end of this interactive working group session, participants came back to the plenary, and two rapporteurs from each sub-group summarised the outcomes and discussions of their respective sub-groups for the participants in the plenary.

5 Session 4: The role of knowledge in resource efficiency policy

The main objective of Session 4 was to discuss and investigate the role of knowledge in resource efficiency policy by addressing the science-policy interface and the importance/challenges of knowledge exchange between policy-makers, researchers and other experts. The session topic was introduced in a keynote by Ben Shaw (Policy Studies Institute, University of Westminster) and followed by an interactive group work that focussed on three main questions for participants to discuss about: (i) From which sources/institutions do you get information/knowledge? Where do you get knowledge from? (ii) Which knowledge gaps exist in resource efficiency policy? What evidence is missing? (iii) What are the research needs for the next 5 years? Which topics/projects would you like to see?

Keynote presentation:

Ben Shaw (Policy Studies Institute, University of Westminster)

“Evidence-based policy-making and the role of knowledge in environmental and resource efficiency policy”

In his presentation, **Ben Shaw** (*Policy Studies Institute, University of Westminster*) reflected on the research-knowledge-evidence-policy interface and, therefore, covered the various types of evidence that researchers should be generating, the policy-makers’ needs, and the mechanisms of interaction between these two groups. Referring to Davies (2004), Mr. Shaw suggested a definition of evidence-based policy-making as an approach that helps people make well-informed decisions about policies, programmes, and projects by putting the best available evidence at the heart of policy development and implementation. He then reflected about the challenges of changing environmental discourses, pointing out that evidence-based policy often struggles to develop sufficiently strong or fast responses to environmental challenges. Secondly, he argued that contested evidence on the nature of environmental problems and their solutions are exacerbated by uncertainty in environmental systems and by complex institutional and actor relationships of different interests and degrees of expertise (i.e. evidence generation, norms and power). Therefore, he argued that evidence-based policy-making is in danger of obscuring or overlooking important political, social and moral judgements.

Then, Mr. Shaw touched upon ‘ways of knowing’ by mentioning three main approaches: empirical, theoretical and experiential. Furthermore, he reflected on bringing evidence into the

policy process and on the types and models of research, but also on policy process. Based on Juntti et al. (2009), he suggested a few reflections on changing environmental discourses: (i) more transparent division of expert and lay knowledge; (ii) science as social negotiation between specialists and stakeholders – participation and consultation is key, not just communication; (iii) allowing different knowledge to be generated and new options; (iv) aiming to treat all knowledge with caution and understand its genesis; (v) more explicit understanding of power/interest relationships in policy – to reveal the use of evidence; (vi) overt juxtaposition of competing and disparate discourses.

Finally, as an input to the following interactive session, he concluded by offering a few questions for discussion: (1) Is progress being made and outlined in strategies?; (2) If yes, what needs to happen?; (3) If no, what needs to happen?; (4) To what degree is the resource efficiency agenda a priority for action really shared across policy-making functions at variety of levels of government, and broader economic and social actors?; and 5) What evidence would progress this?

Interactive session:

“Knowledge practices for resource efficiency policy”

The following session was an interactive exercise based on the ‘crowd-sourcing’ format: three questions were written on flipcharts and, in a first round, participants (in pairs) were invited to walk to each flipchart and reflect and discuss together on the questions posed; then, they could comment and offer insights with sticky moderations cards that were put on the flipcharts. The three questions were chosen before by the DYNAMIX team:

1. From which sources/institutions do you get information/knowledge? Where do you get knowledge from?
2. Which knowledge gaps exist in resource efficiency policy? What evidence is missing?
3. What are the research needs for the next 5 years? Which topics/projects would you like to see?

After the reflections and discussions among participants, a high number of insights were gathered on the flipchart papers. In a second round, participants were distributed in three groups of about twelve persons each and each group had to make a summary of the moderation cards of one questions respectively, discuss together, and select the three most important points raised during the previous exercise (Fig. 2).

Figure 2 “Knowledge practices for resource efficiency policy” – pictures of participants



Q1: From which sources/institutions do you get information/knowledge? Where do you get knowledge from?

The first question was analyzed by splitting the sources of inputs gathered in the first round into two categories, namely “formal” and “informal”.

Within the “formal” category, the main quoted sources were: expertise and institutions such as EEA, OECD and UNEP; research institutes; industries; NGOs; IPCCP and public consultation; scientific journals and publications.

Within the “informal” category, the most quoted sources were: internet in general; Google; and Wikipedia. Other sources, such as social networks were also mentioned (e.g. Twitter) and participants agreed on the potential and increase of new communication channels for addressing and educating people.

Q2: Which knowledge gaps exist in resource efficiency policy? What evidence is missing?

The question on knowledge gaps existing in resource efficiency policy aimed at stimulating reflections on missing evidences in the resource efficiency policy process. At first, participants clustered answers according to three different areas where gaps could be identified, named “profit”, “planet” and “people”.

Within the “people” category, participants identified gaps related to the social dimension, and argued that there was room for improvement in building models to engage and interact with stakeholders and consumers as well as to increase acceptance and achieve shifts of societal paradigms.

Within the category “planet”, participants argued that gaps existed in defining targets, in using the right indicators, and in gauging impacts. Nevertheless, participants argued that impact should be the overarching subject for filling gaps.

Within the “profit” category, participants identified gaps related to the economic dimension of the shift to a resource efficiency society. This included the linkage with financial, business and technology sectors. Participants agreed that resource prices should be used as an incentive to find resource efficient solutions.

Additionally, participants contributed with some further comments: At first, they argued that there was no priority area. Nevertheless, an effort should be undertaken in coordinating

different areas of research, thus the exploration and filling of gaps should be conducted in parallel. Finally, the role of scarcity as leading paradigm in the policy process was doubted. Participants argued that in many cases there was no evidence for scarcity, and doubted its role as indicator for reflecting the real situation.

Q3: What are the research needs for the next 5 years? Which topics/projects would you like to see?

The outcomes from the third question were clustered as well. The identified areas where research was needed concerned: (1) The setting of common and measurable targets and indicators, in order to measure absolute decoupling and environmental impacts; (2) measurement and monitoring of taxation impacts; (3) clarification of how to boost eco-innovation; (4) understanding and steering societal behaviour, people and profit, and how to engage stakeholders directly; (5) how to ensure the diffusion of innovative green technologies.

The plenary session that followed served to present the results that emerged from the three groups. For each question, one rapporteur explained the main outcomes on the respective question in the plenary.

Interactive session: plenary voting on

“Selection of data formats on how to present information on resource efficiency in Europe”

A second interactive session in Session 4 was moderated by **Adrian Tan** (*BIO Intelligence Service, France*). This plenary exercise was mainly conceived for the DYNAMIX consortium to get a sense of the needs and preference from participants about the best way to present data and findings in the project on resource efficiency.

An important aspect in the DYNAMIX project is to involve policy-makers and other key stakeholders in the research being performed. The project team recognises that policy-makers are busy people that might not have much time in their daily work to follow the progress of a research project and get involved. In order to provide policy-makers and key stakeholders the most efficient manner of sharing the findings and results of the research conducted in DYNAMIX, Mr. Tan presented different options for sharing information with stakeholders in the form of reports, text, tables, graphs, diagrams and pictures.

The session worked as a plenary voting exercise on a number of slides presented by Mr. Tan where data formats and their presentation were suggested. Participants had to cast their vote for each data format and the votes were counted by the DYNAMIX team. The presentation of different information formats and voting lead to a good discussion of what was most effective and good tips. While participants had personal preferences, e.g. some prefer well documented documents, others are fine with short briefs, there was a general consensus that whatever format was used, it should be clear and concise. All documents shared with

stakeholders should have a brief executive summary with key points highlighted together with a document (under a 100 pages) that provide more elaborated information.

6 Session 5: Drivers of resource (in)efficiency

The second day of the 1st DYNAMIX Policy Platform began with Session 5 that aimed at identifying and reflecting upon the drivers of resource (in)efficiency. The session was kicked-off with a keynote presentation by Anke Schaffartzik (Institute for Social Ecology, Austria) on “Tackling Resource (In)Efficiency - Drivers of Resource Use” and followed by a presentation of Shailendra Mudgal (BIO Intelligence Service, France) on the “Preliminary results of DYNAMIX analysis on potential and drivers of (in)efficiency in resource use”. The session was completed by group work on identifying the most important drivers of resource (in)efficiency and how they should be addressed by policy. An additional group worked on “Storylines and megatrends of 2050”.

Keynote presentation:

Anke Schaffartzik (Institute for Social Ecology, Austria)

“Tackling Resource (In)Efficiency - Drivers of Resource Use”

Anke Schaffartzik (*Institute for Social Ecology, Austria*) outlined and showed with several graphs that although our planet had about 100 years of decreasing global material intensity, we also had a number of negative trends for resource use, such as growth in population, economic growth, transition to industrial ‘way of life’, and the global division of labour. She concluded by describing a few not favourable developments, such as: (i) continuous growth in resource use; (ii) rebound effects and outsourcing; (iii) (continued) material and energy poverty; (iv) changes in the industrial ‘standard of living’; (v) limitations to development opportunities; and, (vi) to declare capitalism a failed system.

Therefore, she discussed about some constructive progresses, like (a) cutting back resource use and environmental impacts; (b) concerted efforts across sectors and regions; (c) fair distribution of both benefits and burdens; (d) achieving MDGs; (e) maintain standard of living; and (f) GDP Growth. Finally, she addressed the plenary with a question for discussion: “Do we need to redefine the problem(s)?”

Keynote presentation:**Shailendra Mudgal (BIO Intelligence Service, France)****“Preliminary results of DYNAMIX analysis on potential and drivers of (in)efficiency in resource use”**

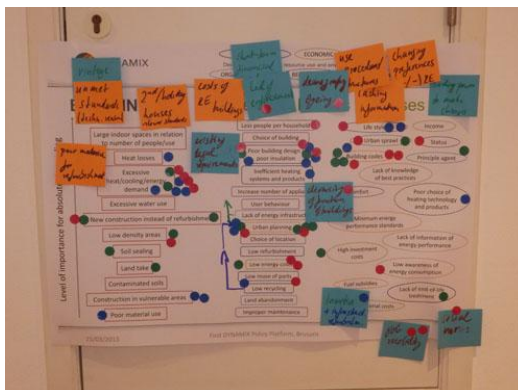
Shailendra Mudgal (*BIO Intelligence Service, France*) introduced the work and some preliminary results from Work Package 2 (WP2) in DYNAMIX which aims at exploring reasons for inefficient resources use over the life cycle period. At first, Mr. Mudgal gave an overview on WP2 objectives and on how inefficiencies in resources use will be analyzed in the project: (1) to determine the magnitude of the problem; (2) to homogenize existing definitions on resource inefficiencies; and (3) to analyze the main underlying reasons for inefficiency. Therefore, he stressed that the research will be performed by reviewing existing literature and data, using qualitative and quantitative methods, and by defining what is efficient.

Mr. Mudgal then gave the example of meat production and consumption to show how all different perspectives will be taken into account (i.e. agriculture, slaughtering, food processing, etc.). He also pointed out that resources, namely materials, energy, water and land, would be taken into account from a consumption and production perspective. He presented the three areas on which the analysis will focus: food, transport and buildings. He added that the reasons for inefficiencies would be also analyzed from a causes/drivers perspective. Furthermore, Mr. Mudgal explained that technological, behavioural, informational, legal, organization and economical aspects would be also taken into account. By concluding, he explained that WP2 aimed at categorizing key inefficiencies, drivers and causes from different perspectives (e.g. resources, sectors, production, consumption). Thus, the identification of key inefficiencies, drivers and causes should drive the proposal of efficient policies and policy mixes.

Interactive session: working groups**“Reflection on drivers of resource (in)efficiency: Which drivers are the most important to address with policies?”**

In the interactive working group session, participants could chose between three (in)efficiency discussion groups, facilitated by **Martin Hirschnitz-Garbers**, **Shailendra Mudgal** and **Adrian Tan** (all from the DYNAMIX project team) respectively. Each group was gathered around an explanatory poster, showing the main inefficiencies that were identified in the project for three key areas: buildings, transport and food. In each working group, participants had time to ask questions and suggest other inefficiencies/drivers/causes that they thought were important to consider which were added with Post-it notes to the posters. Furthermore, participants could cast a vote (3 votes each) on the main drivers/causes in each of the key areas. The interactive session consisted of three rounds so that each participant could visit each key area poster.

WG1: Resource (in)efficiencies in the buildings sector



The three rotational group discussions triggered lively exchange, based on the participants' own professional experience that helped to add relevant inefficiencies, drivers and underlying causes and the assessment of their relevance to the visualisation circulated to all participants in the run-up to the event (see photo above):

- Inefficiencies:** Additional inefficiency explored were vintage of existing building stock/building materials (e.g. old windows causing heat loss to the surroundings) and poor material for refurbishment which, when applied, was not up to existing standards thus causing inefficient use of materials and energy. The inefficiencies considered by far most relevant were excessive heat/cooling/energy demand of building users. Furthermore, undertaking new construction of buildings instead of refurbishment, low density areas and construction in vulnerable areas (e.g. flood prone areas) were all considered as encouraging inefficient resource use of building materials and energy.
- Drivers:** Additional drivers identified were: (1) increasing trends to buy and maintain second or holiday homes, which are often sub-standard in relation to first homes; (2) costs associated with setting up resource efficient buildings (e.g. due to materials required); (3) short-term financial interests of investors which hinder the integration of resource efficiency considerations into planning and construction; and (4) lack of enforcement of building standard compliance. The two drivers considered most relevant were: poor building design/insulation and urban planning.
- Underlying causes:** Additional causes identified were: (1) ageing society/demography; (2) lack of information; (3) use procedures and patterns; (4) social norms; (5) job mobility; (6) changing preferences in favour/disfavour of resource efficient buildings; and (7) lacking power to make changes (e.g. landlord-tenant situations). The most important underlying cause was building codes (e.g. existing material and energy standards), followed by life styles, urban sprawl and job mobility.

WG2: Resource (in)efficiencies in the transport sector



For transport, the following issues were discussed by the participants:

- **Inefficiencies**: There was general agreement that excessive and/or avoidable travel, high fuel consumption of vehicles and the low uptake of fuel efficient vehicles were the main inefficiencies related to transport. Inefficiency in public transport systems and infrastructure were also mentioned.
- **Drivers**: Consumer preference of transport mode and the real use of vehicles were mentioned as other drivers for inefficient transport. Lack of correct pricing and infrastructure to allow more efficient transport systems and practices (e.g. non-motorised options) were also discussed as drivers.
- **Underlying causes**: Some of the underlying causes mentioned for inefficient transport were inertia in structures, e.g. automobile, ship and airplane industries, but also infrastructure development. Poor urban planning was seen as not being able to prepare for the most optimal use of different transport modes and systems. The lack of new business models and positive economic incentives were also discussed as underlying causes for inefficient transport.

WG3: Resource (in)efficiencies in the food sector



For food, the following points were made:

- **Inefficiencies:** There was a general agreement that overconsumption, food waste and a high animal protein diet were the main areas where resources were used inefficiently. The use and depletion of phosphorus, intensive farming and fishing (including depleting of fish stocks and not eating other edible species) was also identified as inefficient resource use.
- **Drivers:** Advertising that encourages overconsumption, e.g. “Buy two, get one free”, was identified as a key driver that was not on the poster. Packaging sizes, retailer standards, food safety and hygiene laws were also mentioned as contributing to food waste.
- **Underlying causes:** Strong food industry lobby groups (manufacturers and retailers had more power than farmers) and poor monitoring of the food chain were mentioned as additional causes to drivers of inefficient food. Social norms, supporting food culture and diets was also mentioned. Poor governance, environmentally harmful subsidies and no valuation of ecosystem services was seen as the causes for inefficient use of resources in agricultural practices.

An extra fourth working group “*Storylines and megatrends of 2050*” ran in parallel and was facilitated by **Mathias Gustavsson** from the Swedish Environmental Research Institute IVL (DYNAMIX). This group discussed the validity, challenges and plausibility of the proposed context scenarios developed in the DYNAMIX project. A short paper was made available before the session, and an introduction to the storylines and megatrends considered was given in the working group.

The discussion in the working group was centred on the methods of applying a four field presentation of different future scenarios. Mathias Gustavsson held a presentation on the scenarios and approaches considered in the DYNAMIX project and based on this a discussion took place. One of the main issues that were raised during the discussion is that the complexity of society makes limiting the different future opportunities to be defined as differences in mainly two dimensions challenging. One of the dimensions that have been

considered for the DYNAMIX project is rate of innovation and this dimension was problematized during the discussions in terms of applicability. For example, rate of innovation can both be considered in terms of rate of new innovations, but also of the directions of these innovations. Depending on how these dimensions of innovation are operationalised in the scenarios the outcome will be different. At the same time, the second dimension considered in the DYNAMIX approach would consider the society's changes in terms of among other things consumption patterns and way of life. This latter dimension could however include aspects of the direction of innovation. Apart from four scenarios that are displaying certain more fundamental changes in society there is also one reference case to be considered. The discussion pointed towards applying a reference scenario that is applied elsewhere, a few examples of such scenarios were given.

7 Session 6: Defining ways forward

The final session 6 of the Policy Platform had the aim to describe 'ways forward' in resource efficiency policy. It comprised two presentations (by Ernst Ulrich von Weizsäcker and Patrick ten Brink), an interactive exercise where participants were asked to select case studies to be analysed through ex-post valuation in DYNAMIX, and a panel discussion with five high-level stakeholders from a diversity of backgrounds and sectors (EU Parliament, EU Commission, University College London, Friends of the Earth, Veolia Environnement).

Keynote presentation:

Ernst Ulrich von Weizsäcker (Co-Chair of UNEP, International Resources Panel and Co-President of The Club of Rome)

"Decoupling economic growth from natural resource use – perspectives and challenges"

Ernst Ulrich von Weizsäcker (*Co-Chair of UNEP, International Resources Panel and Co-President of The Club of Rome*) gave an overview on absolute decoupling, potential areas to achieve it and global challenges. In the first part of the presentation, he showed the main outcomes from two UNEP reports "Decoupling natural resource use and environmental impacts from economic growth" (2011) and "Assessing the Environmental Impacts of Consumption and Production" (2010). The first report documented that, in the past years, relative decoupling has been partially achieved on a global scale for most resources; the second report showed that consumption in all sectors goes together with carbon intensity, and, in this sense, almost no decoupling was achieved. Therefore, he defined decoupling according to the Kuznets curves of dematerialization and de-carbonization, putting particular emphasis on the fact that the achievement of these two conditions is the real planetary challenge to achieve resource efficiency. In addition, he stressed that decoupling should be oriented towards the pursuit of a high rate of innovation, environmentalism, and should also improve people 'material' well-being. Mr. von Weizsäcker then introduced the upcoming UNEP Decoupling Report (released in Summer 2013) by stressing the point that decoupling can be achieved mainly through intentional productivity, rather than maturation and trade (burden shifting).

The second part of the presentation was dedicated to explore the most promising areas to achieve absolute decoupling. According to Mr. von Weizsäcker these are related to: (1) the reduction of greenhouse gas emission, (2) freshwater extraction, and (3) waste. More specifically, in terms of the reduction of GHGs, he argued that decoupling efforts can be achieved especially through synergies with reducing import dependency; moreover, renewable energies enjoy sympathies and increasing energy efficiency in several areas (e.g. rail transportation, aircraft fuel efficiency, shipping, etc.). Concerning freshwater extraction, he reported that technologies are readily available, and efficient policies can be effective in achieving absolute decoupling (as in the stunning example of fresh water consumption in Australia). The highest potential within waste is represented by waste recycling (i.e. metals bearing waste), thus the major challenge is to design goods and products in a way that they are easy to be dismantled and reconverted at the end of their life cycle.

Mr. von Weizsäcker also approached the issue of policy effectiveness. He underlined that, although a large variety of policy instruments are available, most of them just work at the margin of the problem, thus being largely ineffective. Policy instruments suffer a different level of acceptance by stakeholders group in dependence of their predictability: although on a pure theoretical level, instruments such as taxes, tradable permits or subsidies reduction are equivalent, in reality, trade permits are not as predictable as taxes, and thus they tend to be less accepted by economists.

He went on to introduce some challenges related to resource efficiency: At first, he talked about the rebound effect (also called the paradox of Jevons where the increase in resource efficiency, for instance due to technological innovations, tends to increase the rate of consumption of that resource, rather than decrease it). He then referred to the over expectation that lies on renewable energies.

In conclusion, Mr. von Weizsäcker suggested some potential solutions to address absolute decoupling: (1) a policy option addressing the rebound effect, by rising energy and resource prices rise in proportion to the documented average efficiency increases, and (2) to avoid social hardship and de-industrialization by taking into account life-line tariffs for the poor (e.g. South African model) and recycle energy taxes to vulnerable industries (not a per kilowatt-hour but per job).

Keynote presentation:

Patrick ten Brink (Institute for European Environmental Policy)

“Assessment of existing policies and policy mixes to achieve absolute decoupling”

With a brief presentation, **Patrick ten Brink** (*Institute for European Environmental Policy*) introduced few important elements for comprehension and further discussion towards the following interactive session, in which participants were asked to contribute to the selection of case studies to be undertaken in DYNAMIX.

Firstly, he explained the work undertaken so far in the project for the pre-selection of case studies on absolute decoupling of resource use and impacts from GDP growth. Therefore, he pointed out the selection of eight resource issues clusters and the aim of selecting 16 case studies that will be the focus of ex-post evaluation in DYNAMIX (mainly qualitative, but also quantitative) in order to understand the role of policy mixes in achieving absolute decoupling. He then explained the purpose for the case study selection and the need to be able to address the following questions in each of the selected case studies: (1) What has been the level and type of decoupling? (2) How have the policy instruments driven decoupling (of resource use, of impacts)? (3) What are the different roles of instruments in a mix (primary, supporting, enabling)? (4) Lessons from sequencing or packaging of instruments? (5) How has national context influenced the mix and the mix's impacts (context / paradigm)? (6) What insights for policy mixes for future decoupling (i.e. Input to ex ante assessment)?

After presenting the 'long shortlist' of pre-selected case studies, Mr. ten Brink described the nine criteria for the selection of case studies: (i) objective of policy mix; (ii) orientation of instruments; (iii) type of resources (inputs/outputs); (iv) level of focus (economy wide, sectoral, specific products); (v) geographic coverage; (vi) timeline/age of policy mixes; (vii) data availability; (viii) successes and failures; and (ix) potential replicability / transferability.

Working groups:

"Selection of case studies"



Participants were split into two groups to discuss the 'long shortlist' in more detail before 'voting' for case studies that were more interesting to them as well as having the opportunity to introduce new suggestions for potential case studies. There was overwhelming support for a number of the resource categories and issues identified as the underlying objective of policy mixes:

- Agricultural products – particularly dietary change efforts;
- Critical raw materials;

- Construction materials;
- Zero Waste;
- Wood;
- Soil.

A suggestion was made for adding a case study on fertilizer use in Denmark.

At the end of the working group session, Mr. ten Brink summarized the discussion and voting to the plenary, saying that there were some clear preferences or higher levels of interest in some resources and policy mixes. He thanked participants for their contribution, and said that the project team would discuss these results in making the final selection of case studies to be delivered.

Panel discussion:

“How can we move forward in resource efficiency policy in Europe”

The Policy Platform was concluded with a panel discussion with five high-level stakeholders, including **Gerben-Jan Gerbrandy** (*Member of the European Parliament and the European Resource Efficiency Platform*); **Carina Vopel** (*Head of Unit, Directorate F.1, DG Environment, European Commission*); **Paul Ekins** (*University College London*); **Ariadna Rodrigo** (*Friends of the Earth Europe*); and **Bernard Lanfranchi** (*Director Green Economy, Veolia Environnement*). Each panellist was invited for an opening statement before the discussion was opened to the plenary.

Gerben-Jan Gerbrandy (*Member of the European Parliament and the European Resource Efficiency Platform*) gave his opening remarks to the plenary by referring to a recent speech by Commissioner Potočnik who underlined a sense of urgency for resource efficiency. He argued, however, that the importance for resource efficiency has not yet been shared by all stakeholders because it is still seen by many as an environmental agenda. He also pointed out that concrete work has not start yet and only a few European Commission Communications have been prepared. Moreover, he argued that the business world has significantly slowed its efforts towards resource efficiency and would feel excluded by the EU Commission. He views resource efficiency as an enormous societal challenge that needs to go much beyond a sectoral approach and sectoral taskforces, but cross-sectoral efforts. Mr. Gerbrandy concluded by criticizing the ‘Roadmap to a Resource Efficient Europe’ for not yet having produced legislative proposals as well as the Commission and Member States for freezing action and implementation efforts.

Carina Vopel (*Head of Unit, Directorate F.1, DG Environment, European Commission*) started her opening statement by challenging the last critique brought forward by Mr. Gerbrandy: she argued that many policy proposals and actions by the European Commission were in the pipeline. She also emphasized that the biggest problem was the shift of attention

and momentum away from resource efficiency towards GDP growth and reindustrialization. In fact, she pointed out that environmental protection was still seen as a burden by businesses and argued that there was a need to show businesses that 'going green' could lead to growth and could well be a strategy out of the crisis. It was thus important to get away from the old growth path and to avoid short-term thinking. For policy it means to use a combination of legislation and price signals, but also looking at consumer behaviour and peer-pressure, together with the right policy-mixes that consider the whole value chain and avoid silo-thinking.

Paul Ekins (*University College London*) stressed the importance of carbon and energy efficiency as the most pressing issues in terms of resource efficiency. He argued that there was still a resource to be considered: cost-efficiencies. Therefore, he posed a critical question to the plenary: "What do you do when the resource efficiency measures are not cost-efficient?" He then mentioned three categories for resource efficiency measures: cost-effective; cost-ineffective; behavioural inefficiency (i.e. obesity). Finally, he commented on the policy mixes argument raised by Carina Vopel by adding that policies are rarely designed, but are in general the result of negotiation processes with the inputs of the diverse interests of political actors and stakeholders.

Ariadna Rodrigo (*Friends of the Earth Europe*) stressed that the most pressing problem was that the EU and its Member States were not really taking resource efficiency policies seriously. In many cases, she argued, even policy proposals and roadmaps were sometimes taking contradicting directions, e.g. in the 'blue growth strategy' (Maritime Affairs) that was proposing an increase in sea mining instead of supporting recycling of resources. Additionally, she mentioned that, with regard to environmental harmful subsidies, at the EU level, subsidies on incinerators were still in place.

Bernard Lanfranchi (*Director Green Economy, Veolia Environnement*) made the final opening statement by bringing in the view of the business sector. Firstly, he pointed out that resource efficiency had always been on the agenda of the industry and that, therefore, no contradictions existed between economic growth and resource efficiency: in fact, he said that industries will restrict resource use when prices of resources will go up. He then highlighted a major barrier against resource efficiency would be the lack of visibility for investors, but also problems that arise without a common understanding of the terminology and concept of resource efficiency. Finally, he also pointed to the importance of indicators.

As first reaction to the opening statements, Ms. Vopel emphasized the role and work of the European Commission, especially in terms of ambition (i.e. land-use, waste). She said, however, that compromises in EU policy-making are still part of the game, especially in the areas of energy supply and energy security due to strong lobbying of specific industry groups. Therefore, she again stressed the necessity for showing the economic case for 'going green'.

Following her argumentation, Mr. Gerbrandy stressed the necessity of a good advertisement for the resource efficiency discourse. He also touched upon the topic of environmental

harmful subsidies as an area where governments could achieve success in environmental policy when initiating a shifting to phase out and ban harmful subsidies

Responding to this argument, Mr. Ekins stressed the lack of political will for strong resource efficiency measures and urged for more courage to address also paradigms and societal challenges, not only through the lens of GDP, but going beyond it.

In the plenary discussion, participants asked the panellists on their views about the right focus area for resource efficiency to gain political relevance and achieve possible change. In responding to this question, Mr. Gerbrandy suggested the areas of construction, energy and food. Ms. Rodrigo emphasized the necessity of measuring the overall amount of resources consumed (i.e. water, land, material and carbon). Furthermore, she reflected on the need of having a right vision on what we want to achieve, and, hence, of creating the right targets and the way to achieve these.

Another question from the participants addressed the issue of how to implement policies as intended at the design stage. Ms. Vopel replied by pointing out people's behaviours on perception and reactions to new legislation. Furthermore, she stressed the issue that many policies are still developed 'in silos' where no holistic view is taken in consideration. Mr. Gerbrandy suggested to not only to look at top-down approaches but also at grassroots movements and people's energy and efforts.

Again another question from the participants was raised on the key topic of climate change and, especially, the role of the carbon embedded in products. Mr. Ekins replied that practical implementation of technological or institutional solutions remained a challenge, even though options were there and were cost-effective, many barriers still persisted (i.e. legal, institutional, behavioural).

A final question from the audience was directed to Mr. Lanfranchi on how to better integrate industry in the resource efficiency debate at the European level. Mr. Lanfranchi replied that industry had the necessity of 'simple answers', such as, for instance, a sort of helpdesk for industries or coordination of collective databases at European level. The participants also argued to not only focus on EU policy, but to address the burden shift towards third world countries. Another issues addressed was the policy agenda on food consumption and diet. Ms. Vopel pointed towards a policy communication by the Commission on food that was covering different aspects (i.e. waste, consumption, diets etc), good practices and implementation issues. Moreover, she stressed the importance of natural capital, especially towards a definition of resources beyond materials, also including ecosystem services and boundaries. Mr. Ekins added that a large discussion was about diet, and not so much about waste and overproduction of food, mainly because of enormous lobbying and pressure by the private sector (i.e. food and beverage industry), which was not touched by policy agendas; therefore, he urged for more political commitment to put business into the right direction. Finally, Mr. Gerbrandy reflected on the fact that food was a difficult cultural issue, necessitating a long-term agenda for discussion that should be started as soon as possible.

8 Conclusions and outlook

The 1st DYNAMIX Policy Platform established the DYNAMIX project as a relevant element in the resource efficiency debate. The presentations held and the discussions that ensued benefit the project through valuable input on ongoing processes, upcoming policy proposals and the further development of DYNAMIX research design. Furthermore, we also perceive the 1st Policy Platform to have contributed to networking of relevant resource policy actors and to furthering current topical discussions through the insights from this European research project.

Planned for autumn 2013, the 2nd DYNAMIX Policy Platform will further establish this event as a relevant platform for cross-sectoral, interactive and high-level exchange on resource efficiency policy and widen the circle of attendees.